ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH

ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

January 25th, 1955.
Vol. 12...No. 12

Dear Sir:

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Overall atomic energy expenditures by the USAEC for fiscal 1956 were placed at an estimated $2 billion by President Eisenhower in his budget message to Congress last fortnight, $50 million less than in 1955. Operating expenditures for fiscal 1956 will rise to the highest rate yet attained: $1.5 billion. This is principally because of an expected higher level of procurement of raw uranium ores and concentrates and because of greater production at the USAEC's plants as new facilities are completed and placed into operation. The President noted that construction of several experimental nuclear reactors will be started in 1955 and 1956, one of the most significant being a power breeder for which the budget provides $15 million. In 1956, he stated, development work will continue on improved nuclear reactors for submarines, as well as on a reactor to power larger naval vessels. The USAEC and Defense Department will expand and accelerate work on an atomic powered aircraft, and work will continue on development of small transportable nuclear reactors for military use, the President said.

A jointly owned corporation, for the exploration, drilling and mining of uranium claims held by the two firms, has now been formed by Vitro Corp. of America, and Rochester & Pittsburgh Coal Co., with each firm having a 50% interest. (Vitro is an integrated uranium refining-nuclear engineering-advanced technology firm while Rochester & Pittsburgh is the third largest independent coal producer in the United States.) Open pit mining of extensive claims in the Gas Hills area of Wyoming, near Riverton, is expected to be started late next month. (Other RAW MATERIALS news, page 3 this LETTER.)

A hazard does exist as a result of increased high-energy radiation to which people are now being subjected, Alfred H. Sturtevant, professor of genetics, California Institute of Technology, has now asserted, and to say otherwise is "inexcusable", he has declared. Dr. Sturtevant credits the explosions of atomic and hydrogen bombs, and the widespread use of medical x-rays, with hazards both to exposed individuals and, through genetic damage, to the descendents of such persons. Taking issue with the presently established "maximum permissible radiation dosage" (upon which the USAEC relies), Dr. Sturtevant declared that if the entire population were subjected to such a dosage, one third of a million infants with deleterious gene mutations would be born annually in the United States alone.

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ATOMIC ENERGY BUSINESS REPORTS...

SUBSTANTIAL PURCHASES MADE AT HANFORD PLUTONIUM WORKS:- Over 60,000 purchase order and supply contracts totalling $61,658,000 were placed during 1954 at Hanford Works (Richland, Wash.) it has now been learned. "Small business" (under 500 employees) received 50,850 orders worth $40,658,300, with larger firms obtaining the balance. These order and supply contracts coming out of Hanford are placed by the USAEC; General Electric (the operating contractor to the USAEC at Hanford); and two construction contractors, Kaiser Engineers and Blaw-Knox Co., who hold prime construction contracts with the USAEC for the very large expansion which has been underway at Hanford. Procurement was heaviest during the first half of 1954 when approximately $42 million in orders were placed. The decline in the second half of the year reflected slackening activity by the two construction contractors who are nearing completion of their projects.

ENGINEERS FOR NUCLEAR REACTOR INDUSTRY:- Industrial firms requiring competent reactors engineers who are familiar with the most recent advances in nuclear reactor technology have now been invited to sponsor engineers and scientists (who are in their employ) for enrollment in the 1955-56 session of the Oak Ridge School of Reactor Technology. The deadline date for applications is Mar. 14th, 1955; the fifty week course of study begins Sept. 12th, 1955. The school charges a fee of $2500 for each student; for those on USAEC cost-plus contracts, or government payrolls, there is no charge. The school is part of Oak Ridge National Laboratory; application forms, information, etc., may be obtained from the Director of the school at P.O. Box P, Oak Ridge, Tenn.

EXPANSION BY NUCLEAR EQUIPMENT FIRM:- Some 10,000 sq. ft. of plant have now been added to facilities of Precision Radiation Instruments, Inc., (Los Angeles), with the recent acquisition by that firm of a modern brick building in Los Angeles to house its plant and general offices. Precision is retaining its original location in another part of that city as a sales office. The firm claims to be the world's largest manufacturer of portable radiation equipment for uranium surveys and oil exploration; L. Norman is president and board chairman.

HEARINGS UNDER NEW ATOMIC ENERGY ACT SCHEDULED:- Since the new Atomic Energy Act (1954) requires that the Joint Congressional Committee on Atomic Energy hold hearings in the first 60-days of each session of Congress, these hearings have now been tentatively scheduled to start Jan. 31st. According to Senator Clinton P. Anderson, new Chairman of the Joint Committee, the USAEC will be asked (as part of these hearings) to cover 11 phases of industrial atomic work. This will include the Commission's pricing policy; its planned licensing procedures and regulations; problems that might tend to reduce industrial participation in atomic energy; the USAEC's patent activity; plans for training scientists and engineers; discussion of the domestic uranium mining industry; the five-year reactor development program started in the Spring, 1954; and other phases of atomic work. (Senator Anderson in the last fortnight said he thought the secrecy label should be lifted on the prices industry must pay for uranium, for nuclear reactor operation and on the prices the USAEC will pay industry for plutonium and uranium-233, as by-products of such reactor operation. This was in connection with the power demonstration reactor program of the USAEC; see ATOMIC ENERGY BUSINESS REPORTS, dated Jan. 15, 1955, sent subscribers to this LETTER.)

NEW NUCLEAR POWER STUDY TO BE UNDERTAKEN:- The Consumers Public Power District (Columbus, Nebraska) has now made an agreement with the USAEC to survey the USAEC's reactor development activities and to study the engineering, technical and economic aspects of nuclear power and its feasibility in the group's system. The District estimates it will spend approximately $100,000 on the study, which comes under the USAEC's industrial participation program.

SERVICE CONTRACT FOR USAEC WORK EXTENDED:- The cost-plus contract of the Walker-Lybarger Construction Co., with the USAEC, for services it performs at Grand Junction, Colo., has now been extended for two years from Jan. 1st, 1955. Since 1948, Walker-Lybarger, employing 400 persons for this specific work, has handled the management and operation of purchasing, maintenance, construction and similar work for the USAEC at Grand Junction, center of uranium ore activity. (When Walker-Lybarger's contract had come up for renewal Dec. 31st, 1954, a number of other private companies, who had submitted proposals for this work, had their proposals evaluated by the USAEC, which decided to retain Walker-Lybarger.)

ATOMIC ENERGY FINANCIAL REPORTS...

NEW INVESTMENT COMPANY FORMED:- Axe Science & Electronics Corp.(New York) which filed a preliminary prospectus with the Securities and Exchange Commission last fortnight, is a new investment company whose primary objective is long term capital growth through investments in the electronic and atomic fields. Three underwriters: W.E. Hutton, Hemphill, Noyes, and Kidder, Peabody (all New York), will participate in the handling of the stock flotation under which Axe will place $22,875,000 in its treasury. Assisting Axe to formulate investment decisions will be an advisory board composed of Eugene M. Zuckert, (Washington, D.C.) former USAEC Commissioner; John R. Dunning (New York) dean of engineering, Columbia University; Ronald A. Brightsen (Pittsburgh, Pa.) president, Nuclear Science & Engineering Corp.; and Sabine L. Baring-Gould (Clifton Heights, Pa.) Clifton Precision Products Co. The firm of Nuclear Science and Engineering Corp. (Pittsburgh, Pa.) has been retained by Axe (at an annual rate of $25,000 plus expenses) to prepare reports and studies for this advisory board on investment potentials.

FIRM ACQUIRED:- General Precision Equipment Corp. has now acquired more than 97% of the outstanding preferred and common stocks of Griscom-Russell Co., (supplier of special equipment for nuclear energy installations in the United States), by an exchange of stock between the two firms. General Precision is a developer and producer of advanced technological products.

FURTHER URANIUM ACQUISITIONS MADE BY ATLAS CORP.:- The Great Northern Uranium Exploration Co., Ltd., with property in the Beaverlodge area of Canada, has now been acquired by Federal Uranium Corp., Salt Lake City. Federal previously had been acquired by Atlas Corp. in Dec., 1954.

INTERNATIONAL ATOMIC ENERGY NEWS...abroad & United Nations activities...

GREAT BRITAIN:- With the output of the Radiochemical Centre (Amersham) expanded, the production of radioisotopes in the United Kingdom is expected to reach about 20,000 consignments in 1955. This compares with between 16,000 and 17,000 in 1954. About one-third of these shipments will be exported.

UNITED NATIONS:- Preparations are now being made at the United Nations by an advisory committee representing seven countries, including the United States and the Soviet Union, for the first world conference on industrial atomic energy at Geneva. The conference, which has been called by the Assembly of the U.N., in response to President Eisenhower's proposal of Dec., 1953, for a world atom pool, is to take place before next August. I.I. Rabi is the representative on the advisory committee for the U.S.; Sir John Cockcroft and J.V. Dunworth, for Britain; B. Goldschmidt and J. Tine, for France; D.J. Keys, for Canada; J. de Barros and J.C. Ribeiro, for Brazil; and H. J. Bhabha, for India.

RAW MATERIALS...prospecting, mining & marketing...

UNITED STATES:- Hecla Mining Co. (Wallace, Idaho) will take over exploration and development of a uranium discovery on the Radon and Hot Rock claims in the Big Indian District of San Juan County, Utah, according to Hecla president L. J. Randall. The claims are under the control of Utah and Idaho Uranium Co. A rough estimate based on an incomplete drilling of these claims indicates a probable 200,000-ton ore reserve..... Some 464 uranium claims in San Juan County, Utah, have been purchased by Central Western Petroleum Corp. (Fort Worth, Tex.) according to the firm's president, D. T. Merrick..... Montana Western Uranium Co. has now leased 11 claims from March Exploration and Mining Co., according to L. Rogers, Montana Western president; Rogers stated that $500,000 was involved in the transaction.

CANADA:- With additional funds now in the treasury of Nesbitt LaBine Uranium Mines, the company plans additional development work on its properties in the Athabaska district, with emphasis on the sinking of a shaft on its ABC property..... A program of flat, underground drilling is now underway at Lorado Uranium Mines' Beaverlodge area property to determine the full width of the zone on which good values have been indicated previously..... Assays described as "encouraging" have now been received by Meta Uranium Mines for its most recent drill hole testing the firm's new north zone on its Athabaska district property.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURERS:- Well type scintillation detectors, models 810 and 810A, are bench instruments, suitable for analysis of gamma-emitting radioisotopes. The shape of the well type crystal of thallium activated sodium iodide which is used is said to be particularly suited to low radiation energy levels and to assure that substantially all of the radiation energy is dissipated in the crystal. Of the two models, number 810 has a linear pre-amplifier whose output may be fed through an external linear amplifier and thence to a standard scaler. Model 810 is recommended by the manufacturer for pulse height analysis. Model 810A has its own built-in linear amplifier and is primarily for sample counting, feeding directly into standard scalers of 0.25-volt sensitivity. --Atomic Instrument Co., Cambridge 39, Mass.

FROM THE NATIONAL LABORATORIES:- An alpha-radiation detecting device for monitoring floor areas has now been developed and constructed at Los Alamos Scientific Laboratory (which is operated by the University of California as contractor to the USAEC). Somewhat resembling a vacuum cleaner of the upright type, the battery operated device comprises a basic box unit mounted on three wheels and a three-foot-long handle on which is mounted a control box. The basic unit serves as a rolling bed for an alpha-sensitive probe and associated power supplies and amplifiers. The handle-mounted control box contains a reset switch, a range switch providing ranges from 1 to 2,000 or 1 to 20,000 counts per minute; a loudspeaker to provide audible signals of alpha counts, and a counting rate meter. The device is said to be easily maneuverable, and to do a satisfactory job of detecting alpha contamination on a large floor area. Mark H. Tattan, of the Laboratory's chemistry and Metallurgy division, designed the monitor.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Introduction to Nuclear Engineering, by R. L. Murray. A text based on a series of lectures which the author gave in the undergraduate and graduate curricula in nuclear engineering at North Carolina State College. 418 pages. --Prentice-Hall, Inc., New York 11. ($9.35)

Annual Review of Nuclear Science, Vol. IV. J. G. Beckerley, editor; M. D. Kamen and L. I. Schiff, assoc. editors. Covers photonuclear reactions, standardization of radioactive sources, fission radiochemistry, stable isotope dilution, nuclear particle detection, alpha radioactivity, biochemical effects of radiation, and related subjects. 483 pages. --Annual Reviews, Inc., Stanford, Calif. ($7.00).

Reactor Engineering Lectures. These are lectures given by Stuart McLain, Argonne National Laboratory, in September, 1954. Carry designation: ANL-5311, part I. --Library of Congress, Publication Board Project, Wash. 25, D. C. (Microfilm: $3.75. Photocopy: $10.25)

NOTES: A Correlation Chart of Uranium Bearing Minerals has now been prepared by the Colorado School of Mines Research Foundation, Golden, Colo. The chart, which is 50" x 32", lists more than 160 uranium bearing minerals, so located on the chart as to disclose their chemical composition. Enough characteristics are given to permit positive identification of each mineral.

ATOMIC ENERGY EDUCATIONAL ACTIVITY...news & notes...

MINERAL STUDIES:- A three year program is to be undertaken at the geology department of Rice Institute (Houston, Tex.) to study the geochemistry of thorium. J. A. S. Adams and J. W. J. Rogers will conduct the work which will be supported by a $26,000 annual grant from the Robert A. Welch Foundation.

SUPPORT GIVEN NEW RADIOISOTOPE CENTER:- The radioisotope center which has been established at Rutgers University, where first courses (graduate level) start the end of this month, has so far received $1000 contributions from each of 14 industrial firms; additional firms are desired to make up the $30,000 expenditures for the equipment needed. The contributions ("membership fees") give the donor priority in selection of students for the training courses, which cover the basic physics and chemistry of radioisotopes. Students also receive training in the use of radioactive substances for research purposes and in necessary phases of health and laboratory protection. Lab instruction will make up half of the course work.

ATOMIC PATENT DIGEST...latest U.S. grants made & current news...

INVENTIONS OFFERED FOR PRIVATE USE:- A new group of twenty-one U.S.-owned patented inventions, developed during the course of USAEC-sponsored research, has now been made available on a royalty-free basis, non-exclusively, for commercial use. Inquiries concerning this latest list (as well as 726 similarly released inventions) should be sent to the USAEC's Patent Br., 1901 Constitution Ave., Wash. 25, D.C. This new group is as follows: (1) Pumping apparatus for the production of high vacuum of the vapor stream type; No. 2,691,481. (2) A valve for fluids at above atmospheric pressure, which replaces the conventional packing glands with a positive type seal; No. 2,691,773. (3) An improved high-voltage bushing, for use in connection with the isolation of either large alternating or direct current voltages; No. 2,692,297. (4) A binary uranium-nickel alloy useful in the construction of neutronic reactors; No. 2,692,823. (5) A device to determine static gas pressure adjacent a body moving through the air, regardless of whether relative motion between the body and air is at comparatively low speeds, or in the vicinity of Mach number unity, or higher; No. 2,695,700. (6) A convenient apparatus for handling samples of radioactive corrosive or valuable liquids; No. 2,693,705. (7) A patent relating to differential-integral pulse height analyzers for fast operation having dead times as low as 1 microsecond or less; No. 2,694,146. (8) A method for the recovery of zirconium tetrachloride from complex compounds of zirconium tetrachloride and phosphorous pentachloride; No. 2,695,213. (9) A method of making tungsten oxyfluoride by continuously passing fluorine over tungsten trioxide; No. 2,695,214. (10) An improvement in the electrolytic fractionation of hydrogen isotopes; No. 2,695,268. (11) Method and apparatus for measuring elevated temperature over a wide range; No. 2,695,364. (12) A mechanical manipulator which enables an operator to stand behind a protective wall while handling noxious materials; No. 2,695,715. (13) An atomic bomb burst direction indicator suitable for civil defense purposes; No. 2,696,050. (14) A variable capacitance amplifier with the desirable control characteristics of electromagnetic amplifiers without the attendant disadvantages; No. 2,696,530. (15) An electrical safety device for simultaneously interrupting several circuits; No. 2,696,539. (16) Methods and apparatus for converting the energy of radioactive emanations directly to electrical energy; No. 2,696,564. (17) A froth flotation process for the recovery of uranium values from artificial ore-like materials; No. 2,697,518. (18) Apparatus for handling frangible articles by remote control; No. 2,697,529. (19) An ion source wherein a vapor of material of which ions are desired is produced within a slot formed of anodes which produce an electric field for accelerating electrons emitted from a filament; No. 2,697,788. (20) A method of producing the curium isotope 238 by bombarding plutonium 239 with 80 Mev. alpha particles from a cyclotron, and chemically separating the curium; No. 2,698,290. (21) An improved time-of-flight mass spectrometer which offers means for measuring the mass of ions with increasing accuracy as their mass increases; No. 2,698,905.

GRANTS MADE:- Gamma ray detector of the electrical pulse producing type. Comprises (in part) a sealed housing containing a gas filling, with a cathode in this housing formed of several thin annular metal plates, separated and held in a parallel bank. These plates are provided with a series of aligned holes, and an anode wire goes (axially) through each series of holes. A cup member fits snugly within the center holes in these plates. Several partition elements are located between and perpendicular to each adjacent pair of plates, and extend radially from the outer surface of the cup member to the inner surface of the housing which fits snugly around the perimeters of these plates. U. S. Pat. No. 2,699,513 issued Jan. 11th, 1955; assigned to The Texas Co., New York, N.Y. (Inventor: Bob E. Watt.)

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

January 25th, 1955